

Notice of Allowability

Application No.

10/696,435

Examiner

Tho D. Ta

Applicant(s)

NAKAMURA ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Interview summary dated 5/26/04.
2. ☒ The allowed claim(s) is/are 1-16.
3. ☒ The drawings filed on 29 October 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 10/29/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Gerald E. Hespos on 05/26/04.

2. The application has been amended as follows:

CLAIM AMENDMENTS:

1. (currently amended) A connector comprising:

a housing ~~(10)~~ with opposite front and rear ends and at least one cavity ~~(11)~~ extending between the ends, at least one insertion opening ~~(14)~~ extending into the front end of the housing ~~(10)~~ and into the cavity ~~(11)~~, at least one lock ~~(12)~~ formed inside the housing ~~(10)~~ substantially adjacent the cavity ~~(11)~~, and at least one mold-removal space ~~(13)~~ extending into the front end of the housing ~~(10)~~ and communicating with the lock ~~(12)~~;

a terminal fitting ~~(30)~~ inserted in the cavity ~~(11)~~ along an inserting direction ~~(1D)~~ and locked by the lock ~~(12)~~, the terminal fitting ~~(30)~~ being withdrawable from the cavity ~~(11)~~ by disengaging the lock ~~(12)~~ from the terminal fitting ~~(30)~~ with a jig insertable into the mold-removal space ~~(13)~~;

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a retainer-(40) displaceable in a direction-(MD) intersecting the inserting direction-(ID) of the terminal fitting-(30) between a first position-(FIG. 4; 6) where insertion and withdrawal of the terminal fitting-(30) is permitted and a second position (FIG. 1; 3) where the retainer-(30) engages and locks the terminal fitting-(30) in the housing-(10), the retainer-(40) having a front wall-(46) slidable along the front end of the housing-(10), the front wall-(46) having at least one through hole-(47) substantially facing the insertion opening-(14) when the retainer-(40) is at the second position and at least one jig insertion opening-(48) substantially facing the mold-removal space-(13) when the retainer-(40) is at the first position, wherein:

a tapered retainer-side guide-(49) is formed in an area of an opening edge of each through hole-(47), and the front end of the housing-(10) has at least one tapered housing-side guide-(15).

2. (currently amended) The connector of claim 1, wherein the through hole-(47) and jig insertion opening-(48) communicate with each other.

3. (currently amended) The connector of claim 2, wherein tapered retainer-side guide-(49) is formed in an area of the opening edge of the through hole (47) excluding a communicating area with the jig insertion opening-(48).

4. (currently amended) The connector of claim 3, wherein the tapered housing-side guide-(15) is at the communicating area of the opening edge of the through hole-(47) with the jig insertion opening-(48) when the retainer-(40) is at the second position.

5. (currently amended) The connector of claim 1, wherein guiding means ~~(16; 50)~~ is provided at the housing-side guide ~~(15)~~ and the opening edge of the jig insertion opening ~~(48)~~ for sliding contact with each other as the retainer ~~(40)~~ is displaced, the guiding means ~~(16; 50)~~ being substantially parallel with a sliding direction ~~(MD)~~ of the front wall ~~(46)~~.

6. (currently amended) The connector of claim 1, wherein a surface of the housing-side guide ~~(15)~~ substantially opposite the corresponding insertion opening ~~(14)~~ defines a slanted introducing surface ~~(15B)~~ substantially facing the opening edge of the jig insertion opening ~~(48)~~ for an adjacent cavity.

7. (currently amended) The connector of claim 1, wherein the front wall ~~(46)~~ has at least one reinforcing portion ~~(52)~~ projecting at an angle to a wall surface of the front wall ~~(46)~~ and extending substantially in a transverse direction ~~(TD)~~.

8. (currently amended) A connector comprising:
a housing ~~(10)~~ with front and rear ends, first and second cavities ~~(11)~~ spaced apart along a moving direction ~~(MD)~~, first and second insertion openings ~~(14)~~ extending into the front end and communicating with the respective first and second cavities ~~(11)~~, locks ~~(12)~~ in the housing ~~(10)~~ adjacent the respective cavities ~~(11)~~, first and second mold-removal spaces ~~(13)~~ extending into the front end and aligned respectively with the locks ~~(12)~~ of the first and second cavities ~~(11)~~, a housing-side guide ~~(15)~~ projecting at the front end between the first insertion opening ~~(14)~~ and the second mold-removal space ~~(13)~~, each said housing-side guide ~~(15)~~ having a tapered

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guide surface (15A) aligned for guiding a mating terminal fitting into the first insertion opening (14); and

a retainer (40) displaceable in the moving direction (MD) between first (FIG. 4; 6) and second (FIG. 1; 3) positions, the retainer (40) having a front wall (46) slidable along the front end of the housing (10), a communication opening in the front wall (46) and slidably engaged with the housing-side guide (15), a through hole (47) and a jig insertion opening (48) adjacent the communication opening, the jig insertion opening (48) being aligned with the second mold-removal space (13) when the retainer (40) is at the first position and the through hole (47) being aligned with the first insertion opening (14) when the retainer (40) is at the second position, and tapered retainer-side guides (49) adjacent said through hole (47) aligned for guiding the mating terminal fitting into the cavity (11) when the retainer (40) is at the second position.

9. (currently amended) The connector of claim 8, wherein the housing-side guide (15) and the communication opening have interengaged guiding surfaces (16; 50) aligned substantially parallel with the moving direction (MD).

10. (currently amended) The connector of claim 8, wherein the housing-side guide (15) has a slanted introducing surface (15B) substantially facing an opening edge of the second jig insertion opening (48).

11. (currently amended) The connector of claim 8, wherein the through hole (47) is a first through hole (47), the front wall of the retainer further having a second through hole (47) spaced from the first through hole (47) and spaced from the communication opening and the jig insertion opening (48), the second through hole (47)

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being aligned with the second insertion opening ~~(14)~~ when the retainer ~~(40)~~ is at the second position.

12. (currently amended) The connector of claim 11, wherein the first through hole ~~(47)~~, the communication opening, the jig insertion opening ~~(48)~~ and the second through hole ~~(47)~~ all are substantially aligned along the moving direction ~~(MD)~~.

13. (currently amended) The connector of claim 8, wherein the through hole ~~(47)~~ and the jig insertion opening ~~(48)~~ both open into communication with the communication opening.

14. (currently amended) A connector comprising:
a housing ~~(10)~~ with front and rear ends, first and second stages of cavities ~~(11)~~ arranged so that each said cavity ~~(11)~~ of the first stage is aligned with one said cavity ~~(11)~~ of the second stage along a moving direction ~~(MD)~~, insertion openings ~~(14)~~ extending into the front end and communicating with the respective cavities ~~(11)~~, locks ~~(12)~~ formed in the housing ~~(10)~~ adjacent the cavities ~~(11)~~, mold removal spaces ~~(13)~~ extending into the front end and aligned respectively with the locks ~~(12)~~, housing-side guides projecting from the front end between the first and second stages of cavities ~~(11)~~, each said housing-side guide ~~(15)~~ having a tapered guide surface ~~(15A)~~ aligned for guiding a mating terminal fitting into one of the insertion openings ~~(14)~~ of the first stage of cavities ~~(11)~~; and

a retainer ~~(40)~~ displaceable in the moving direction ~~(MD)~~ between a first position ~~(FIG. 4; 6)~~ and a second position ~~(FIG. 1; 3)~~, the retainer ~~(40)~~ having a front wall ~~(46)~~ slidable along the front end of the housing ~~(10)~~, communication openings

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formed through the front wall ~~(46)~~ and slidably engaged respectively with the housing-side guides ~~(15)~~, through holes ~~(47)~~ and jig insertion openings ~~(48)~~ adjacent the communication openings, the jig insertion openings ~~(48)~~ being aligned respectively with the mold removal spaces ~~(13)~~ for the second stage of cavities ~~(11)~~ when the retainer ~~(40)~~ is at the first position, the through holes ~~(47)~~ being aligned with the insertion openings ~~(14)~~ for the first stage of cavities ~~(11)~~ when the retainer ~~(40)~~ is at the second position, each said through hole ~~(47)~~ having tapered retainer-side guides ~~(49)~~ aligned for guiding the mating terminal fitting into the corresponding cavity ~~(11)~~ of the first stage when the retainer ~~(40)~~ is at the second position.

15. The connector of claim 14, wherein the housing-side guides ~~(15)~~ and the communication openings have interengaged guiding surfaces ~~(16; 50)~~ aligned substantially parallel with the moving direction ~~(MD)~~.

16. The connector of claim 14, wherein the each of the housing-side guides ~~(15)~~ has a slanted introducing surface ~~(15B)~~ substantially facing an opening edge of the second jig insertion opening ~~(48)~~.

3. The following is an examiner's statement of reasons for allowance: the prior art fails to provide, teach or suggest the retainer having a front wall slidable along the front end of the connector housing, the front wall having at least one through hole substantially facing the insertion opening when the retainer is at the second position and at least one jig insertion opening substantially facing the mold-removal space of the connector housing when the retainer is at the first position, wherein a tapered retainer-


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side guide is formed in an area of an opening edge of each through hole, and the front end of the housing has at least one tapered housing-side guide; and in combination with other limitations in the base claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho D. Ta whose telephone number is (571) 272-2014. The examiner can normally be reached on M-F (8:00-5:30). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on (571) 272-2800 ext 33. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

tdt
05/26/04


THO D. TA
PRIMARY EXAMINER